U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-546/83-01(DE); 50-547/83-01(DE)

Docket Nos. 50-546; 50-547 License Nos. CPPR-170; CPPR-171

Licensee: Public Service of Indiana
Post Office Box 190
New Washington, IN 47162

Facility Name: Marble Hill Nuclear Generating Station

Inspection At: Marble Hill Site, Jefferson County, IN

Inspection Conducted: January 24-28, February 24-25, 1983

Inspectors: R. S. Love R. S. Love 4/20/83

R. Mendez C. C. Williams for 4/21/83

W. S. Little (management meeting only)

Approved By: C. C. Williams, Chief C. C. Williams 4/21/83
Plant Systems Section

Inspection Summary

Inspection on January 24-28, February 24-25, 1983 (Reports No. 50-546/83-01(DE); 50-547/83-01(DE))

Areas Inspected: A special inspection was initiated following receipt of allegations and concerns relating to safety-related electrical work. The inspection consisted of a review of pertinent procedures, records, work activities, and interviews of personnel. The inspection involved a total of 125 man-hours by two NRC inspectors.

Results: Of the areas inspected, five apparent items of noncompliance were identified (Criterion III - failure to assure that applicable requirements were translated into instructions, procedures, or drawings - paragraphs 3.C and 3.D.(4)(c-e); Criterion V - failure to accomplish activities affecting quality in accordance with instructions, procedures, or drawings - paragraphs 3.D.(1)(a) and (b), 3.D.(2)(g), 3.D.(3)(a-j), 3.D.(4)(a) and (b), 3.F.(1)(d-g), 3.F.(2)(d-h), 3.F.(3)(d and e), 3.F.(4)(d and e); Criterion XIV - failure to establish measures to indicate the status of inspections and tests performed - paragraphs 3.D.(1)(a and b); Criterion XV - failure to control nonconforming items to prevent their inadvertant use or installation - paragraph 3.G.(1); and Criterion XVI - failure to assure that conditions adverse to quality are promptly identified and corrected - paragraph 3.G.(2).

DETAILS

1. Persons Contacted

Public Service Indiana (PSI)

**S. W. Shields, Sr. Vice President, Nuclear Division
**W. M. Petro, Vice President, Nuclear Services
**L. O. Ramsett, Quality Assurance Officer
#**C. Beckham, Quality Engineering Manager
**J. V. Bott, Nuclear Regulation and Affairs Manager
**R. D. Hughes, Contracts Manager
**J. Posillico, Lead Planner
H. Curry, Electrical Quality Engineering Manager
K. Rafferty, Electrical Construction Surveillance Supervisor

Commonwealth-Lord Joint Venture (CLJV)

E. Scott, Vice President
L. Dick, Quality Assurance Director (Acting)
R. D. Pendergast, Quality Control Manager
M. Priebe, Quality Control Supervisor
G. Conner, Audit Supervisor
A. Brameier, Document Control Supervisor
K. Morgan, Lead Records Technician

U. S. Nuclear Regulatory Commission (NRC)

#**W. S. Little, Chief, Engineering Branch 2
#R. C. Knop, Chief, Projects Branch 1
#C. C. Williams, Chief, Plant Systems Section
#S. H. Lewis, Regional Counsel
**R. S. Love, Reactor Inspector
R. Mendez, Reactor Inspector
**J. J. Harrison, Senior Resident Inspector, Marble-Hill
**J. Schapker, Resident Inspector, Marble Hill

The inspectors also contacted and interviewed other licensee and contractor personnel during this reporting period.

R. S. Love, Reactor Inspector, and R. Mendez, Reactor Inspector, NRC; W. M. Petro, and C. Beckham, PSI; were the only individuals attending the exit interview on January 28, 1983.

#Denotes those persons participating in the exit interview conducted on January 28, 1983, via telephone.

**Denotes those present at the Management Meeting conducted on February 25, 1983.

2. Licensee Action on Previous Inspection Findings

(Closed) Open Item (50-546/81-14-04; 50-547/81-14-04): During a previous inspection it was observed that procedure CWP-C6E, Revision 0, "Cable Termination" did not address: (1) electrical cable separation requirements to be observed during the training-in of cables into equipment during termination, and (2) controls required to provide assurance that vinyl butt splices would not be inadvertantly used inside the containment building or in other high radiation/high temperature environments.

During a review of Cable Termination Procedure CWP-C6E, Revision 1, dated October 8, 1982, it was observed that: (1) electrical cable separation requirements inside equipment is now addressed, and (2) the use of vinyl butt splices has been deleted from the procedure.

3. Investigation of Allegations

A. Introduction

On January 21, 1983, an alleger's attorney telephoned the Region III office and expressed concerns about traveler modifications without approval and material traceability infractions at the Marble Hill Nuclear Generating Station as relating primarily to safety-related electrical work that is being performed by Commonwealth-Lord Joint Venture (licensee's electrical contractor). On January 24, 1983, the alleger was interviewed in his attorney's office by three NRC representatives. At this time, the alleger showed copies of various documents to the NRC representatives and made specific allegations. The allegations are addressed in the following report sections.

B. Allegations

(1) The alleger stated that there is a conflict between electrical construction and quality procedures in that construction is fabricating and installing an item to one criterion and quality control is inspecting the same item to a different criterion. No examples were furnished.

This allegation was not substantiated. See paragraph 3.C of this report for procedures reviewed by the Region III inspectors.

(2) The alleger stated that Electrical Installation Travelers were being modified with the use of white-out (typing correction fluid), strike outs and additions that were not initialed and dated, and general revisions to the traveler were made after the traveler had been reviewed and approved for construction. The alleger supplied a list of 9 travelers, documented on NCR 1344, which the alleger stated had been modified as described above.

This allegation was partially substantiated. No examples of the use of white-out were identified. See paragraph 3.D.(2) and 3.D.(3) of this report for details of the Region III inspectors findings.

(3) The alleger stated that there were electrical material traceability problems in that the heat number, lot number, or code number for items supplied by the licensee were not being noted on the Electrical Installation Traveler. The alleger supplied a list of 4 travelers. These 4 travelers, the alleger stated, did not list the material supplied by the licensee.

This allegation was partially substantiated with mitigating circumstances. The traveler in use during this inspection only required that material be listed if it was supplied by the 2790 contract (2790 is the contract number for the electrical installation activities). See paragraph 3.D of this report for details of the Region III inspectors findings. NOTE: Weld filler material is covered in a separate allegation.

(4) The alleger stated that some electrical raceway hangers do not have identification numbers on them. No examples were provided by the alleger.

This allegation was substantiated by the licensee and NCRs prepared on the hangers that were missing identification numbers. See paragraphs 3.F and 5 of this report for details of the Region III inspectors findings.

(5) The alleger stated that electrical quality control personnel are not verifying/witnessing the transfer of heat numbers prior to stock material being divided/cut. No examples were provided.

During the reporting period, due to time limitations, the Region III inspectors were unable to substantiate nor deny this allegation. See paragraph 3.D and 3.F of this report for details of the Region III inspectors findings.

(6) The alleger stated that weld filler metal issue slips do not indicate where filler metal was used. No examples were provided.

This allegation was substantiated but weld filler metal traceability to a given weld is not required per AWS D.1.1 nor the project procedure. See paragraph 3.D of this report for additional details on weld filler metal control.

(7) The alleger stated that welding symbols on drawings were being added and/or modified by field personnel. No examples were provided by the alleger.

The Region III inspectors were unable to substantiate this allegation. Approximately 100 hanger drawings were reviewed in the Power Block and the inspectors were unable to find a drawing where a weld symbol had been modified or added. See paragraph 3.E of this report for additional details.

(8) The alleger stated that a cable tray hanger which had been installed in the wrong location, was cut out by the craft and installed in the proper location without the proper documentation. An example was provided by the alleger.

The Region III inspectors were able to substantiate this allegation. The example provided by the alleger had been identified by Commonwealth-Lord Joint Venture (licensee's electrical contractor) and documented on NCR 1336 M1, dated January 4, 1983. No other examples of this type problem were identified by the Region III inspectors during this reporting period.

(9) The alleger stated that Engineering Change Notices (ECNs) and Field Change Requests (FCRs) are in the electrical contractors office but they are not available in the field (Power Block). The alleger also stated that ECNs and FCRs are not posted on the Electrical Installation Travelers. No examples were provided.

The Region III inspectors were not able to substantiate this allegation. ECNs and FCRs are posted on drawings by document control and a copy of the ECN/FCR is issued to the field office(s). The inspectors also observed that FCRs had been posted on travelers. See paragraph 3.E of this report for details of the Region III inspectors findings.

(10) The alleger stated that Electrical Installation Travelers were not controlled in that there was no formal check-out/check-in system for travelers in the field offices which are located in the Power Block.

The Region III inspectors were able to substantiate this allegation; however, codes, standards, specifications and procedure CWP-C42 do not require a formal control system for travelers once they have been issued to the Area Manager (field) for implementation. The standard practice is for the foreman to remove the traveler from the work area at the end of the shift and place it in the field office files.

(11) The alleger stated that electrical Nonconformance Reports have been lost. No examples were provided.

The licensee confirmed that approximately 26 original NCRs out of 1,390 have been lost; however, duplicate originals were prepared from current up-to-date copies of the originals

that are maintained by the electrical contractor's Quality Assurance Administration group. Copies of NCR's are made at each significant step of the NCR process.

(12) The alleger stated that original and re-work Electrical Installation Travelers are not tied together. No examples were provided.

This item could not be substantiated by the Region III inspectors. Both the original and re-work traveler numbers are identical to the item number shown on the Sargent and Lundy drawings. Example: In the Auxiliary Building, 383 foot elevation, Sargent and Lundy drawing E-2-3002H027, along with traveler number E-2-3002H027, were utilized to install electrical raceway hanger H027. On January 27, 1983, the hanger was rejected because of weld overlap. Rework traveler number E-2-3002H027 was initiated and the weld was repaired on January 11, 1983. In this case, the rework traveler was physically attached to the original traveler while still in the field.

In the case where a rework traveler is initiated after the original defined activity had been completed and accepted, the original traveler would not be removed from the QA records vault and attached to the rework traveler. Again, both the original and rework travelers would have identical numbers and would be filed in the same document package once the rework had been accomplished and accepted.

(13) The alleger stated that he thought that the licensee should file a 10 CFR 50.55(e) report because of the above allegations.

On February 11, 1983, Public Service Indiana (PSI) notified the U. S. Nuclear Regulatory Commission, Region III, of a potentially reportable item as required by 10 CFR 50.55(e) because of indeterminate quality of the installed safety-related electrical cable tray hangers. This potential 50.55(e) report was made after the licensee evaluated the results of their special audit of their electrical contractor (Commonwealth-Lord Joint Venture). See paragraph 5 of this report for additional details.

C. Review of Procedures

The Region III inspectors reviewed the following construction and quality procedures:

(1) QCP-C2, Revision 6, dated November 4, 1982, "Cable Tray and Hanger Inspection"

(a) Paragraph 2.1 states; "This procedure shall apply to all Category I cable tray and Seismic Category I cable

tray hangers installed and fabricated at the Marble Hill Nuclear Generating Station".

In accordance with Regulatory Guide 1.29, Revision 3, paragraphs C.2 and C.3, the scope of this procedure needs to be expanded to include Seismic Category I, non-safety-related cable tray to hanger attachments and cable tray splice plate bolting.

(b) Paragraph 4.4.2 states that the installation tolerance for bolted horizontal hanger members is ± 1/2 inch.

This paragraph needs to be expanded or a new paragraph generated to provide an installation tolerance for welded horizontal hanger members.

(2) QCP-C4, Revision 1, dated July 23, 1981, "Inspection Report".

No comments at this time.

(3) QCP-C5, Revision 7, dated November 8, 1982, "Inspection Checklist". Procedure Interim Change Notice, dated December 29, 1982, was attached to this procedure.

No comments at this time.

(4) CWP-C3B, Revision 4, dated October 26, 1982, "Fabrication and Installation of Electrical Supports". Effective date of this procedure was November 5, 1982.

(a) Paragraph 4.2.3 states, "An "H" plate connector, Std.-EB-802, shall be installed on the cable pan general notes and installation detail drawings".

It appears that some words were left out of this paragraph.

(b) Paragraph 4.2.9 indicates that no welding can be performed on cable tray after electrical cables have been installed.

The inspector informed the licensee that this requirement may be hard to abide by and that they should consider developing a cable protection procedure that would permit welding on a cable tray containing cables providing that the cables were protected.

(5) CWP-C4A, Revision 3, dated October 27, 1981, "Document Control".

No comments at this time.

(6) CWP-C4B, Revision 2, dated December 3, 1982, "Document Control (Correspondence)".

No comments at this time.

(7) CWP-C6B, Revision 0, dated September 2, 1980, "Cable Installation and Termination Documentation".

(a) Paragraphs 4.2.1.1 and 4.2.2.2 references procedure CWP-C6A but as of January 27, 1983, CWP-C6A has not been issued for use.

(b) Paragraphs 4.2.2.4 and 4.2.2.6; neither one of these paragraphs discuss the requirements for maintaining cable sidewall pressure calculations.

(8) CWP-C6C, Revision 2, dated July 23, 1982, "Cable Installation".

(a) Paragraph 4.1.3 states in effect that Quality Control inspects Category I cable installations except for those designated as partial pulls.

The inspector informed the licensee that Quality Control must inspect both partial and complete safety related (Category I) cable installations.

(b) Paragraph 4.5.1 - The inspector informed the licensee that engineering will have to determine minimum sheave size for cable pulling operations so as not to exceed the cable minimum bend radius and maximum cable sidewall pressure.

(c) Paragraph 4.8 - The inspector reminded the licensee that maximum cable sidewall pressures must be considered and that additional pull boxes may have to be installed in accordance with STD.-EB-146 to limit cable sidewall pressure.

(d) Paragraph 4.9.29 discusses cable separation requirement between Class 1E and BOP cables but does not discuss the separation requirements for redundant cables per IEEE-384 and IEEE-422.

(e) Paragraph 4.9.31 - Indicates that "break links" will be utilized to limit cable pulling tension. The licensee was queried as to how they planned to certify the break links. The licensee stated that at the present time, their plans were not firm as to what method they will use to test and certify the break links.

(f) Paragraph 4.9.46 states that craft and quality control personnel will enter their badge number on the quality document to indicate who performed the given activity. The licensee was informed that they would have to assure that badge numbers would not be re-issued for

the life of the project so that the activity could be traced to the person performing the activity.

(g) The licensee was informed that the section of this procedure on cable removal, paragraph 4.11, does not address: (1) steps to be taken to protect the cables remaining in the raceway during the removal of one or more cables from the raceway, and (2) steps to monitor the maximum cable pulling tension required during pull-out activities when the cable(s) are to be re-used.

(h) Paragraph 4.12.3 states that coiled electrical cables be supported by one rope. The Region III inspectors recommended that the licensee consider using two ropes or a saddle to support coiled cables because other facilities were encountering minimum bend radius violations when only one rope was being used to support coiled cables.

(i) Paragraph 4.9.19.1 states that when a cable enters a tray within three feet of routing point marker, the cable routing tabulation may not have that routing point number listed even though the cable crosses the routing point. Due to interpretation, this paragraph has caused problems at other facilities. It is recommended that this paragraph be expanded to define the exact intent rather than constructing by interpretation. Giving examples would also help.

(j) Paragraph 4.9.36 discusses "combing" cables to bring them below the top of the tray. The Region III inspectors recommended that the licensee consider training the cables in cable trays at time of installation to reduce the over-fill (overflow) problems encountered during installation.

(k) The IEEE-384 and Regulatory Guide 1.75 requirements to mark (color code) safety related cables every 5 feet during or prior to installation was not addressed. The electrical specification requirement to support electrical cables every 35 feet in risers was not addressed.

(9) QWP-C42, Revision 2, dated December 29, 1982, "Electrical Installation Traveler"

(a) Paragraph 2.1 states material heat number transfer and repair are excluded from the requirements of this procedure. The Region III inspectors took exception to this statement because:

1. During fabrication process using stock material, the stock material may need to be subdivided and

in accordance with QCP-C22, a Quality Control inspector must witness the transfer of heat, lot, or code number(s) prior to cutting the stock material.

2. Repairs are an acceptable method of correcting deficiencies of items covered by the traveler program.

(b) Paragraph 4.2.1 states in part; "Any changes or additions of information to the Electrical Installation Traveler shall be made by Field Engineering". In accordance with the Marble Hill Project Quality Assurance Manual, changes or additions to a traveler constitutes a revision. Paragraph 4.2.1 indicates that changes and additions may be made by the Field Engineer without a formal travel revision.

(c) Paragraph 4.2.9 indicates that a rework traveler is only required if QC has performed the required inspections. This paragraph is incorrect as written. A rework may be required when an activity is partially complete and before Quality Control has inspected the work. Example: Construction has started to install electrical structural steel for a hanger when an ECN is issued to relocate the hanger. Paragraph 3.5 of this procedure indicates that a rework traveler is required for the example given.

(d) Paragraphs 4.1.2 and 4.1.3 - Who is responsible for the preparation of the Electrical Installation Traveler? Paragraph 4.1.2 assigns the responsibility to the Project Engineer and paragraph 4.1.3 assigns the responsibility to the Quality Assurance Engineering Supervisor.

(e) Paragraph 4.2 - This paragraph states that the Area Engineer, Area Manager, and Quality Assurance Engineer shall sign Block 5 of the traveler to indicate their review or acceptance, as applicable, of the traveler.

Paragraph 4.1.7 states that the traveler shall be considered a QA record.

Based on paragraphs 4.1.7 and 4.2. entries on quality assurance records (travelers) need to be dated as well as signed.

(f) Paragraph 4.2.6 states; "The Welding Engineer or his designee shall sign Block 11 signifying acceptance of welding inspections". This paragraph needs to be expanded to indicate that the Welding Engineer accepting the welds need to be an AWS Certified Welding Inspector per form 1701-H, paragraph 4.1.1. The licensee should also consider moving this paragraph into Section 4.4

of the procedure. There is no apparent checklist or inspection report required. The procedure does not describe how the Welding Engineer assigns verification and hold points.

The procedure does not delineate the welding engineer's acceptance criteria.

(g) Paragraph 5.0 - References. Several procedures appear to be missing from the list of referenced procedures.

The Region III inspectors informed the licensee that failure to assure that applicable regulatory, specification, code and standard requirements are correctly translated into procedures and instructions as exemplified in paragraphs 3.C.(1), 3.C(8), and 3.C(9) above is an item of noncompliance with 10 CFR 50, Appendix B, Criterion III (546/83-01-01(A); 547/83-01-01(A))

D. Review of Electrical Installation Travelers

(1) On January 25, 1983, the Region III inspectors informed the licensee that they wanted to review several Electrical Installation Travelers (EIT) for completed cable tray hanger installations. Commonwealth-Lord Joint Venture (CLJV) quality assurance vault copies of EIT packages for hangers E-0-3051H28, E-1-3061H011, and E-1-3061H012 were presented to the Region III inspectors for review. Following are the observations made during this review.

(a) E-0-3051H028

1. Contrary to the requirements of procedure QWP-C42, Revision 2, the Quality Control Inspector failed to verify material traceability and failed to verify if the hanger was installed per design documents. These two items were listed as verification points on the EIT. After these items had been pointed out to the licensee by the NRC, the electrical contractor prepared NCR 1377MO, dated January 25, 1983, to document the lack of Quality Control inspection.

2. Contrary to the requirements of procedure QWP-C42, Revision 2, Field Engineering personnel failed to review the work activity defined on the EIT for completeness to applicable procedures and design documents as evidenced by N/A's being inserted in Block 11 (engineering sign-off block) for fit-up verification, auxiliary steel partial welds, auxiliary steel welds complete, and hanger location.

3. Contrary to the requirements of procedure QWP-C42, Revision 2, and Form 1701-H, the Welding Engineer

failed to signify his/her acceptance of auxiliary steel welds as evidenced by N/A's being inserted in Block 11 for auxiliary steel partial and completed welds.

4. Procedure QWP-C42, Revision 2, paragraph 4.7, states, in part, "After work/inspection activities have been completed, the Area Manager and the Area Engineer shall review the Electrical Installation Traveler for completeness and accuracy and indicate acceptance by signing Block 16". This paragraph also states, in part, "The Quality Control Inspection Supervisor shall review the inspection portion of the traveler for completeness and accuracy and ensure that all inspection checklists are transmitted to the vault. The Quality Control Inspection Supervisor shall then sign Block 16. . .". Contrary to these requirements, Block 16 (Final Review) on the EIT was signed-off on January 13, 1983, by the Foreman, Superintendent, and Engineer, and on January 17, 1983, by the Quality Control Inspection supervisor with inspection/verification blocks blank and improperly designated N/A.

5. The EIT has an attribute for the cleaning and painting of auxiliary steel and hanger welds but all sign-off blocks had been designated N/A for this attribute. The licensee stated that this item would be "picked-up" at a later date. The Region III inspectors requested to see the licensee's/electrical contractor's status system, punchlist, etc., that would indicate that additional work was required on this hanger assembly. The licensee and contractor determined no list or system existed.

6. The EIT indicated that 3/32", E-7018, weld filler material was used to make the hanger welds. Heat number 412N5381 and Lot number 2C131R02 were noted on the EIT for the weld filler material. The Region III inspectors reviewed the certification for the Heat/Lot numbers identified. The certification appeared to be satisfactory.

(b) E-1-3061H011 and E-1-3061H12

1. The heat/lot numbers for weld filler material were not entered on the EIT for the auxiliary steel and hanger welds completed on August 25, 1982. Research by the electrical contractor's Quality Control Manager indicated that the recording of heat/lot numbers was a requirement as of July 1, 1982, per quality procedure

QCP-C2 and as of October 26, 1982, per construction procedure CWP-C3B. The inspectors were informed that this problem was identified on MCAR number 013, dated December 29, 1982. It was observed that NCR 1294MO, dated December 17, 1982, NCR 1296MO, dated December 21, 1982, and NCR 1299MO, dated December 20, 1982, were attached to the MCAR. A review of these documents indicated that they pertained to filler material traceability.

Examples are listed on the NCR's with the indication that filler material traceability is a generic problem.

2. A review of documentation in this EIT package indicated that NCR 392, dated September 14, 1982, was outstanding against this hanger. The EIT has been signed-off as being complete and the NCR was not noted on the traveler in accordance with procedures. A review of NCR 392 indicated that cable tray hanger E-1-3061H11 was not listed on NCR 392. Revision 1 disposition, dated November 24, 1982, to this NCR indicated that engineering was to obtain attachments from NCR 277 and make them part of NCR 392. As of January 25, 1983, this action had not occurred.

Again, there were no status indicators to indicate the status of inspections. See item D.(1)(a)5 above.

The licensee was informed that failure to accomplish activities in accordance with instructions, procedures, and drawings as exemplified by items 3.D.(1)(a)1, 2, 3, 4, and 3.D.(1)(b)1, 2, above is an item of noncompliance in accordance with Criterion V of 10 CFR 50, Appendix B (546/83-01-02(A); 547/83-01-02(A)).

The licensee was informed that failure to establish measures to indicate the status of inspection and tests performed upon individual items as exemplified by items 3.D.(1)(a)5 and 3.D.(1)(b)2 above is an item of noncompliance with Criterion XIV of 10 CFR 50, Appendix B (546/83-01-03; 547/83-01-03).

(2) On January 25, 1983, the Region III inspectors made a general review of approximately 25 Electrical Installation Travelers (EIT) in the Auxiliary Building, 462 foot elevation, field office. The work activities were in process for the travelers reviewed.

The following travelers were reviewed in detail:

(a) E-0-3051H001, Revision 0, dated July 29, 1982.
(b) E-0-3051H008, Revision 0 & 1, dated July 29, 1982 and August 24, 1982.
(c) Fabrication traveler for hanger E-0051H002, Revision 0, dated November 3, 1982.
(d) E-0-3051H005, Revision 1, dated August 31, 1982.
(e) E-0-3051H008, Revision 0, dated July 29, 1982.
(f) E-0-3051H009, Revision 0, dated July 29, 1982.

For the above listed travelers, entries were made with a black ink pen, weld filler material heat/lot numbers were noted, changes were initialled and dated.

(g) E-0-3051H034, Revision ?, dated September 16, 1982. Entries appeared to be made using a blue ink pen. Many entries were blurred so as to be unreadable, example - revision number. The construction sign-off for "Hanger Complete" had a single line through the sign-off but this change was not initialled or dated. The auxiliary steel material was listed as P42 but material size was not listed.

The licensee was informed that item 3.D.(2)(g) above was another example of noncompliance in accordance with Criterion V of 10 CFR 50, Appendix B, failure to accomplish activities in accordance with instructions, procedures, or drawings (546/83-01-02(B); 547/83-01-02(B)).

(h) E-0-3051H016, Revision 0, dated September 16, 1982. The auxiliary steel and hanger material quantities were deleted on this traveler. The auxiliary steel material identification numbers were listed as T24 and A26. The Region III inspectors were unable to determine what material had been utilized for this hanger assembly. This item is unresolved pending a more in-depth review of the subdivision of stock material, the hanger installation and associated documentation (546/83-01-04; 547/83-01-04).

(3) On January 25, 1983, the Region III inspectors made a general review of approximately 40 EIT's in the Auxiliary Building 439 foot and 346 foot elevation. It was observed that 17 of the travelers reviewed had changes in the installation reference document column without the traveler being revised in accordance with procedure QWP-C42. Examples are as follows:

(a) E-0-3062H002, Revision 0, dated September 14, 1982. Three changes made on January 17, 1983, by M.C.
(b) E-0-3062H004, Revision 0, dated September 14, 1982. Changes made on January 17, 1983, by M.C.
(c) E-0-3062H006, Revision 0, dated September 14, 1982. Changes made on January 1[illegible], 1983, by M.C.

(d) E-0-3062H008, Revision 0, dated September 14, 1982. Changes made on January 17, 1983, by M.C.
(e) E-0-3062H022, Revision 0, dated September 14, 1982. FCR E5623 added, was not initialled or dated.
(f) E-3062H028, Revision 0, dated September 15, 1982. Changes made on January 17 and 18, 1983, by M.C.
(g) E-1-3061H005, Revision 2, dated December 23, 1982. FCR added, was not initialled or dated.
(h) E-1-3061H101, Revision 2, dated December 23, 1982. Changes made, was not initialled or dated.

The above listed travelers were located at the 439 foot elevation. The remaining travelers were located at the 346 foot elevation.

(i) E-2-3002H517, Revision 2, dated January 21, 1983. FCR's E5307 and E5275 added, was not initialled or dated. Traveler had been revised on December 8, 1982 (Revision 1) per FCR E5321.
(j) E-2-3002H509, Revision 0, dated October 25, 1982. FCR E5139 added, was not initialled or dated.
(k) E-2-3002H511, Revision 0, dated October 28, 1982. FCR E5275 added, was not initialled or dated. Also, the hanger fit-up had been signed off by construction on November 3, 1982, but a note attached to the traveler states; "Can't complete fit-up until A-12 plates arrive". (Cut A-12 plates). The item (hanger fitup) appeared to have been signed off before the work activity had been completed. The Region III inspectors were unable to confirm or deny this suspicion during this reporting period. Pending further investigation, this item is unresolved (546/83-01-05; 547/83-01-05).

The licensee was informed that items 3.D.3.a thru j above, were additional examples of noncompliance in accordance with Criterion V of 10 CFR 50, Appendix B, failure to accomplish activities in accordance with instructions, procedures, or drawings (546/83-01-02(C); 547/83-01-02(C)).

(4) Following are generic problems identified on Electrical Installation Travelers (EIT):

(a) Procedure QWP-C42, Revision 2, requires the welding Engineer and Field Engineer to sign Block 11 of the EIT to indicate their acceptance of the welding activity. In all of the EITs reviewed, Block 11 for welding activities were only initialled by one person or were marked N/A.
(b) During initial review of the traveler, Block 5 (Revision Record) is not being dated by the Engineer, Superintendent, and QA Engineer to indicate when they performed their review.

(c) The EITs reviewed do not provide an attribute for torquing of hanger bolts (horizontal to veritcal numbers) by construction.
(d) The EITs reviewed do not provide space for construction to enter torque wrench number and calibration due date.
(e) The EITs reviewed do not provide for the assignment of Hold Points or verification Points by the Welding Engineer. Per procedure QWP-C42, the Welding Engineer performs acceptance inspections for all welding activities, this would include tack welds.

The licensee was informed that items 3.D.(4)(a) and (b) above, were additional examples of noncompliance in accordance with Criterion V of 10 CFR 50, Appendix B, failure to accomplish activities in accordance with instructions, procedures, or drawings (546/83-01-02(D); 547/83-01-02(D)).

The licensee was also informed that items 3.D.(4)(c), (d), and (e) above, were additional examples of noncompliance in accordance with Criterion III of 10 CFR 50, Appendix B, failure to assure that applicable regulatory, specification, codes and standards requirements are correctly translated into procedures and instructions (546/83-01-01(B); 547/83-01-01(B)).

E. Document Control

The Region III inspectors reviewed approximately 100 drawings in the Power Block. FCRs were being posted on the drawings. No instances were observed where weld symbols had been added, deleted, or modified. While at Station B in the Auxiliary Building, the inspectors selected the following drawings for followup:

(1) E-0-3002H068, Revision A, dated October 25, 1982. FCR E-5271 was posted on the drawing.
(2) E-0-3002H067, Revision A, dated October 25, 1982. FCR E-5270 was posted on the drawing.
(3) E-0-3002H057, Revision A, dated October 25, 1982. FCR E-5270 was posted on the drawing.
(4) E-0-3002H040, Revision A, dated October 25, 1982.
(5) E-0-3002H009, Revision A, dated October 18, 1982. FCRs E-5248 and E-5299 were posted on the drawing.
(6) E-0-3001H012, Revision A, dated October 18, 1982.
(7) E-0-3001H001, Revision B, dated March 31, 1982.
(8) E-0-3011H004, Revision C, dated August 25, 1982.
(9) E-0-3012H053, Revision A, dated September 27, 1982.
(10) E-0-3023H029, Revision A, dated October 11, 1982, FCR E-5318 was posted on the drawing.

A copy of the FCRs, applicable to the above drawings, were available in the Station B office. The Electrical Installation Travelers (EITs) that had been issued to the field were maintained in a file cabinet in this area. No formal EIT control system was being implemented nor is a traveler control system required by the licensee's

electrical contractor procedures after the travelers are issued to the field.

The Region III inspectors contacted the licensee's electrical contractor's document control center to determine if the above listed drawings were the correct revisions and if the applicable FCRs had been posted on the correct drawing. The documents in the field matched the documents in the document control center. The Document Control Supervisor informed the inspectors that document control personnel updated the drawing stick files and posted the FCRs on the applicable drawing(s). Document control formally transmits the FCRs to the cognizant personnel. The inspectors reviewed several of the document transmittal forms. The document recipients were acknowledging receipt of the documents and returning the forms to document control.

No items of noncompliance were identified in this area.

F. Verification of Hanger Location

On January 28, 1983, the Region III inspectors selected 4 electrical cable tray hangers in the Auxiliary Building, 439 foot elevation, for verification of location, materials, size, type, welders identification, and proper documentation. Following is a list of the hangers checked and the inspectors findings:

(1) Hanger Number E-1-3061H165 was installed utilizing: Electrical Installation Traveler (EIT) E-1-3061H165, Revision 0; drawing E-1-3061H165, Revision A, and welding procedure CWP-C8A, Revision 4.

(a) Hanger was installed within tolerance and was of correct type and size.
(b) Welder identification number (2J) was stamped next to the welds and weld filler material heat/lot number was noted on the traveler.
(c) Hanger material was supplied by the licensee and was not noted on the traveler. This is in accordance with traveler instructions.
(d) Hanger Partial Installation (tack weld) was not checked by the Welding Engineer nor the Field Engineer as indicated by the blank space opposite this attribute.
(e) Hanger Installation Complete (final weld) was not checked by either the Welding Engineer or the Field Engineer, in that, the respective checklist block was only initialled and dated by one person. The procedure requires both of these engineers to initial and date this block.
(f) Two of the attributes (material traceability and hanger partial installation) identified as QC verification points were marked N/A but were not initialled and dated by the QC inspector in accordance with procedure QWP-C42.
(g) The Foreman and Superintendent indicated their final acceptance of the traveler before all the work/inspection

activities had been completed. This is in violation of procedure QWP-C42.

(h) Hanger was properly identified.

(2) Hanger number E-1-3061H090 was installed utilizing: EIT E-1-3061H090, Revision 1; drawing E-1-3061H090, Revision B, and weld procedure CWP-C8A, Revision 4.

(a) Hanger was installed within tolerance, was of correct type and size, and was properly identified.
(b) Welder identification numbers (1T and 2J) were stamped next to the welds and weld filler material heat/lot numbers were noted on the EIT.
(c) Hanger material was supplied by the licensee and was not noted on the EIT. This is in accordance with the traveler instructions.
(d) Hanger tack welds were not checked by the Welding Engineer nor the Field Engineer as indicated by an N/A in the block for this attribute.
(e) Hanger final weld was not checked by either the Welding Engineer or the Field Engineer, in that, the respective checklist block was only initialled and dated by one person.
(f) The foreman indicated his final acceptance of this EIT before all the work/inspection activities were completed.
(g) The Field Engineer failed to review numerous work activities for completeness as indicated by an N/A in the blocks for these attributes.
(h) A rework EIT for this hanger was attached to the EIT package. The rework EIT did not contain a revision number nor was there a Revision Description entered as required by Procedure QWP-C42.

(3) Hanger number E-1-3061H138 was installed utilizing: EIT E-1-3061H138, Revision 0, drawing E-1-3061H138, Revision A, and welding procedure CWP-C8A, Revision 4.

(a) Hanger was installed within tolerance, was of correct type and size, and was properly identified.
(b) Welder identification number (2J) was stamped next to the welds and weld filler material heat/lot number was noted on the traveler.
(c) Hanger material supplied by the electrical constractor was noted on the EIT but the ID number was missing on the angle iron. This attribute had not been verified by QC, EIT still in progress.
(d) The Field Engineer failed to review numerous work activities for completeness as indicated by an N/A in the blocks for these attributes.
(e) Two Revision 0 travelers exist with the same EIT number (E-1-3061H138). The first EIT was dated August 17, 1982, and the second traveler was dated December 8, 1982.

(4) Hanger Number E-0-3061H155 was installed utilizing: EIT E-0-3061H155, Revision 0; Drawing E-0-3061H155, Revision B; and weld procedure CWP-C8A, Revision 4.

(a) Hanger was installed within tolerance, was of correct type and size, and was properly identified.
(b) Welder identification number (2Y) was stamped next to the welds, and weld filler material heat/lot number was noted on the traveler.
(c) Hanger auxiliary steel supplied by the electrical contractor was noted on the EIT.
(d) "Hanger welds complete" was signed-off on November 19, 1982, by Construction and Field Engineering but the attribute "Hanger assembly and Installation Layout" was not signed-off as being completed as of January 28, 1983.
(e) As of January 28, 1983, the only attribute verified by QC was "Hanger Location" but the attributes, to indicate if the hanger location was (a) per design and (b) within tolerance, were not checked.

The licensee was informed that items 3.F.(1)(d thru g), F.2.(d thru h), F.3.(d & e), and 4.(d & e) were additional examples of noncompliance in accordance with Criterion V of 10 CFR 50, Appendix B, failure to accomplish activities in accordance with instructions, procedures, or drawings (546/83-01-02(E); 547/83-01-02(E)).

G. Review of NCRs and MCARs

(1) During a general review of nonconformance reports (NCR) prepared by the licensee's electrical contractor, the Region III inspectors observed that identified nonconforming items were not being controlled by hold-tags and/or hold flags in accordance with procedure QCP-C10. Examples of identified nonconforming items that were not controlled are documented on NCRs 210, 233, 277, 331, 392, 396, 1294, 1296, 1344, 1377, and 1379.

The licensee was informed that item 3.G.(1) above was an example of noncompliance in accordance with Criterion XV of 10 CFR 50, Appendix B, failure to control nonconforming items to prevent their inadvertant use or installation (546/83-01-06; 547/83-01-06).

(2) During this reporting period, the Region III inspectors reviewed selected NCRs, MCARs, and PSI Electrical Quality Engineering status reports in an attempt to understand some of the electrical contractor's problems. Following are the results of this review:

(a) On April 21, 1982, CLJV issued Management Corrective Action Report (MCAR) 003 to document that CLJV procedures lacked sufficient guidelines to assure that only correct and acceptable items and material were furnished for use in Category I work. This MCAR was closed on June 18, 1982, based on the issuance of MCAR 006.

(b) On April 23, 1982, PSI reported that all evidence indicated that CLJV Category I activities were rapidly approaching an out of control condition. On June 4, 1982, CLJV issued a Stop Work Order (SWO), stopping Category I installations. This SWO was lifted on July 28, 1982, (Reference - PSI status report dated August 9, 1982).

(c) On June 2, 1982, CLJV issued MCAR 004 to document that cable tray hanger work was being performed prior to an approved traveler being issued as referenced on NCRs 210 and 233. This MCAR was closed on June 7, 1982, based on the issuance of MCAR 005.

(d) On June 4, 1982, CLJV issued MCAR 005 because of adverse trends in the installation and inspection of Category I cable tray and conduit hangers. Reference documents listed were MCAR 004, NCRs 210 and 233, and PSI surveillance reports 82-009, 82-038, 82-043, 82-045, and 82-046.

This MCAR was closed on August 4, 1982, with the statement that all activities had been completed except paragraph 5, which will be included in MCAR 008.

Paragraph 5 of the MCAR states in part:

"A. All Category I cable tray hangers, conduit hangers, and equipment fabricated and/or installed prior to June 5, 1982 shall be reviewed to assure:

(1) That all required inspections have been performed and documented.

(2) That nonconformance reports, inspection reports/checklists, design documents and procedures pertaining to the installation including material traceability records to the point of installation are documented on the Electrical Installation Traveler".

In conjunction with MCAR 005, SWO 005 was issued on June 4, 1982, stopping Category I installation activities involving EIT packages. A partial release to this SWO was granted on June 29, 1982, with a full release on July 28, 1982.

(e) On June 17, 1982, MCAR 006 was issued by CLJV. This MCAR required that all unacceptable material be identified and NCRs prepared. Per attached documentation, NCR's 325, 331, 340, 364, 386, 397, 412, and 520 were issued.

Revised SWO 006 was issued on July 20, 1982, to stop release of selected material for Category I installation (original issue of SWO 006 was not provided). SWO 006 was lifted on October 29, 1982, because issuance of material was permitted by NCR 331. MCAR 006 was closed on December 9, 1982.

(f) On July 12, 1982, CLJV issued NCR 277 to document:

1. Missing inspection reports
2. Inadequate description of items inspected
3. Missing inspection results
4. Conflicting notes on inspection reports
5. QC inspector not qualified
6. Work not completed to stage inspected (Assume this means that the QC inspector was signing-off the inspection attribute before the work activity was accomplished).

Part of the disposition required QC to:

1. Locate CLJV purchased items and material in the field
2. Determine category of items and material in accordance with CWP-C37
3. Perform and re-document re-verification of receiving inspections
4. Place a Hold Tag on material in the material storage area

Per PSI status report dated January 25, 1983, at least 33 NCRs were generated by NCR 277.

As a result of NCR 277, PSI notified Region III of a potentially reportable item as required by 10 CFR 50.55(e) because conduit and cable tray inspection reports generated by the electrical contractor (CLJV) were determined to have a variety of deficiencies. On December 3, 1982, PSI notified Region III that deficiencies were identified in some of the re-inspected hangers and these hangers would be re-worked. This December letter was a final report as required by 10 CFR 50.55(e).

NCR 277 was closed on January 14, 1983.

(g) As indicated in item (e) above, on August 9, 1982, CLJV prepared NCR 331 to document material traceability problems identified by MCAR 006. The copy of this

NCR provided by the licensee indicates that the NCR had been revised seven (7) times while the copy provided by the alleger indicates that the NCR was revised eight (8) times. Both copies of NCR 331 indicate that the NCR is still open.

(h) The Region III inspectors also reviewed MCARs 008, 011, 012, 013 and NCRs 392, 396, and 1147 which address in whole or in part, material traceability problems encountered by CLJV.

The Region III inspectors observed that the material traceability problems identified on MCAR 003 on April 21, 1982, had not been resolved as of January 29, 1983. This review indicated that the licensee was aware of CLJV's quality problems. It should also be noted that CLJV's position is that "Defective material is not reportable under 10 CFR Part 21" as indicated under the Engineering Disposition of NCR 331.

The licensee was informed that failure to establish measures to assure that conditions adverse to quality are promptly identified and corrected is an item of noncompliance with Criterion XVI of 10 CFR 50, Appendix B (546/83-01-07; 547/83-01-07).

4. Stop Further Processing

On January 27, 1983, PSI issued Corrective Action Request (CAR) Number 283PSI0008. This CAR was transmitted to the licensee's electrical contractor (Commonwealth-Lord Joint Venture) on January 28, 1983, by letter number QDR-0238-83. The letter and CAR directed CLJV to stop work in the safety-related electrical areas.

On February 2, 1983, the Region III Office of the U. S. Nuclear Regulatory Commission issued a Confirmatory Action Letter (CAL) to Public Service Indiana. This CAL required that PSI obtain Region III approval prior to allowing their electrical contractor to return to work in the electrical safety-related areas with the exception of the installation of embedded electrical conduit.

5. Licensee Audit

On February 2-11, 1983, the licensee conducted and in-depth audit of the CLJV quality program. The audit was performed by four individuals for eight days and resulted in the following findings:

- eleven program deficiencies
- nine nonconformances to the quality program
- four concerns

This audit further confirmed the allegations, NRC inspection findings, and also identified addition problem areas.

On February 11, 1983, the licensee reported a potential 10 CFR 50.55(e) Construction Deficiency Report, based on the internal audit of their electrical contractor. This audit afforded PSI sufficient information to define the depth of the problem areas and was deemed reportable after their evaluation.

6. Management Meeting

On February 25, 1983, Mr. W. S. Little and other members of the Region III staff met with Mr. S. W. Shields and other members of the PSI staff to discuss PSI's recovery program in the electrical area. The recovery program as presented was generally acceptable. The NRC's major concerns were: (1) lack of identified NRC hold points, and (2) the timeliness of PSI audits.

7. Unresolved Matters

Unresolved matters are items about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance or deviations. Unresolved items disclosed during this inspection are discussed in Paragraphs 3.D.(2)(h) and 3.D.(3)(k).

8. Exit Interview

The inspector met with licensee representatives (denoted under paragraph 1) at the conclusion of the inspection on January 28, 1983, and February 25, 1983. The inspector summarized the scope and findings of the inspection. The licensee acknowledged the information.